

What is claimed is:

1. A communication control apparatus comprising:

a plurality of communication processing units each of which processes data; and

5 a control unit which controls said plurality of communication processing units;

said control unit comprises,

10 a polling unit which polls said plurality of communication processing cards in a first order which is predetermined, and

an allowing unit which allows an operation of outputting data from one of said plurality of communication processing cards when said control unit receives a response from said one of said plurality of  
15 communication processing cards;

each of said plurality of communication processing units comprises,

20 a responding unit which returns to said control unit a response to polling by said polling unit when said each of said plurality of communication processing units has data to be output, and is polled by said polling unit, and

an outputting unit which performs said operation of outputting data which is allowed by said  
25 allowing unit.

2. A communication control apparatus according to

claim 1, further comprising at least one control line which interconnects said control unit and said plurality of communication processing cards, and said polling unit polls each of said plurality of communication processing  
5 cards by outputting onto said at least one control line identification information identifying said each of said plurality of communication processing cards.

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3. A communication control apparatus according to  
10 claim 1, further comprising an installation detecting unit which detects whether or not each of said plurality of communication processing cards is installed, and said polling unit omits polling at least one of said plurality of communication processing cards when said installation  
15 detecting unit detects that said at least one of said plurality of communication processing cards is not installed.

4. A communication control apparatus according to  
20 claim 1, further comprising a time measuring unit which measures an elapsed time after said allowing unit allows said operation of outputting data from said one of said plurality of communication processing cards, and said polling unit polls another of said plurality of  
25 communication processing cards when a predetermined time elapses after said allowing unit allows said operation of outputting data from said one of said plurality of

communication processing cards.

5. A communication control apparatus according to claim 1, wherein each of said plurality of communication  
5 processing cards further comprises an informing unit which informs said control unit that said operation of outputting data is completed, and said polling unit polls another of said plurality of communication processing  
10 cards when said control unit is informed by said informing unit that said operation of outputting data from said one of said plurality of communication processing cards is completed.

6. A communication control apparatus according to  
15 claim 5, wherein said polling unit polls another of said plurality of communication processing cards when a predetermined time elapses after said allowing unit allows said operation of outputting data from said one of said  
20 plurality of communication processing cards, and said control unit is not informed by said informing unit that said operation of outputting data from said one of said plurality of communication processing cards is completed.

7. A communication control apparatus according to  
25 claim 1, wherein said polling unit polls another of said plurality of communication processing cards when said operation of outputting data from said one of said

plurality of communication processing cards is completed, where said another of said plurality of communication processing cards is arranged at a top of said first order.

5           8. A communication control apparatus according to claim 1, wherein said polling unit polls another of said plurality of communication processing cards when said operation of outputting data from said one of said plurality of communication processing cards is completed,  
10 where said another of said plurality of communication processing cards follows said one of said plurality of communication processing cards in said first order.

          9. A communication control apparatus according to  
15 claim 1, wherein said polling unit successively polls one of said plurality of communication processing cards when said responding unit in said one of said plurality of communication processing cards sends to said control unit a request for allowance of successive output of data.

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          10. A communication control apparatus according to claim 1, further comprising a memorizing unit which memorizes at least one response received from at least one of said plurality of communication processing cards, and  
25 said allowing unit allows an operation of outputting data from each of said at least one of said plurality of communication processing cards in a second order

determined in a predetermined way, after a cycle of operations of polling all of said plurality of communication processing cards is completed.

5           11. A communication control apparatus according to claim 10, wherein said second order is determined according to priorities assigned to the plurality of communication processing cards.

10           12. A communication control apparatus according to claim 10, wherein said second order is determined based on information included in each of said at least one response.

15           13. A communication control apparatus according to claim 12, wherein said information is determined based on importance or a type of said data to be transmitted from one of said at least one of the plurality of communication processing cards which returns said each of said at least one response.

20           14. A communication control apparatus according to claim 12, wherein said information is determined based on an amount of data which is held in a data buffer provided in one of said at least one of the plurality of  
25 communication processing cards which returns said each of said at least one response.

15. A communication control apparatus according to claim 1, wherein said allowing unit allows said operation of outputting data from said one of said plurality of communication processing cards, immediately after said  
5 control unit receives said response from said one of said plurality of communication processing cards, or after a cycle of operations of polling all of said plurality of communication processing cards is completed, based on whether or not said response is a type which indicates a  
10 request for immediate allowance.

16. A communication control apparatus according to claim 15, wherein said responding unit in each of said plurality of communication processing cards returns said  
15 type or another type of response, according to an amount of data held in a data buffer provided in said each of said plurality of communication processing cards.